

PATENT ABSTRACTS OF JAPAN

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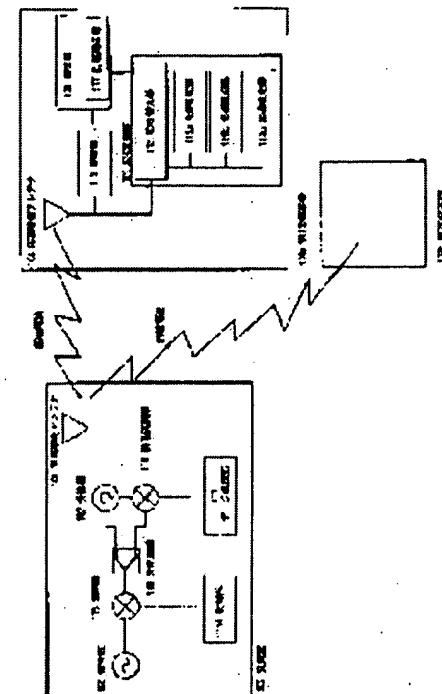
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(54) MOBILE OBJECT IDENTIFICATION SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To realize a compact and inexpensive mobile object identification system capable of quickly reading out data from a plurality of responders in the same area.

SOLUTION: A microwave signal generated from a signal source 105 of an interrogator 102 is modulated by a modulation part 115 and distributed to the transmitting side and the receiving side by a distribution circuit 106 and the transmitting side signal is transmitted from an interrogator side antenna 101. The transmitted microwave signal is received by a responder side antenna 104, ASK-modulated by a control signal outputted from a control part 108 and transmitted to the interrogator 102 through the antenna 104. The transmitted microwave signal is received by the antenna 101, distributed to the receiving side through a branching filter 107, demodulated by a received signal demodulation part 110 and processed by a data processing part 111, and the processed data are read out from responders 103a, 103b.



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DETAILED DESCRIPTION

Detailed Description of the Invention]

0001]

Field of the Invention] This invention relates to the mobile discernment system equipped with the interrogator and the responder.

0002]

Description of the Prior Art] Conventionally, what is depended on the non-contact IC card system indicated by JP,8-23919,A as a mobile discernment system is known.

0003] The correspondence procedure of the conventional non-contact IC card system is shown in drawing 6. Also when, as for close, two or more cards 601a, 601b, and 601c come to a communications area in this system, the cards 601a, 601b, and 601c in a communications area and access are possible for read/write equipment 602. While Cards 601a, 601b, and 601c determine the 1st condition 603 which read/write equipment 602 directs, and the timing which returns the response block 604 which contains an ID code from an own ID code. Make the response block 604 which Cards 601a, 601b, and 601c return to read/write equipment 602 receive, a data collision is made to detect, and the resending demand 605 of the response block which conditions are changed based on this result and contains an ID code is carried out.

0004] For example, in card 601a, the other cards 601b and 601c resend the response block 606 after TO+T (ID) after TO from a resending demand. Read/write equipment 602 processes response block 606a from card 601a without a collision. Furthermore, the resending demand 607 is carried out and other card 601c resends [card 601b] the response block 608 after TO+T (ID) after TO from a resending demand. This repeat receives a response block without a collision from a card 601, and the communication link with two or more cards is performed.

0005]

Problem(s) to be Solved by the Invention] In this mobile discernment system, it is small and cheap and it is required that the information from two or more transponders in the same area should be read for a short time.

0006] In such a mobile discernment system, it is small and cheap and this invention aims at constituting the system which can read the information from two or more transponders in the same area in a short time.

0007]

Means for Solving the Problem] In order to solve this technical problem, this invention is constituted so that two or more gradual modulators may be provided and communication link quality may be changed to a transponder side according to communication link conditions.

0008] Thereby, it is small and cheap and the mobile discernment system which can read the data of two or more transponders in the same area in a short time can be constituted.

0009]

Embodiment of the Invention] The modulation section in which invention of this invention according to claim 1 modulates the output signal from the source of a signal which generates an output signal, and said source of a signal, The splitter which separates spectrally the reflected wave as a reply signal received by the antenna which transmits the output signal modulated in said modulation section, and said antenna with an output signal, While inputting the signal sent out from an interrogator with the recovery section which restores to said reply signal, the data-processing section which processes the signal from said recovery section, and the control section which controls an interrogator based on the data of said processing section, and said interrogator The response dexterous antenna which sends out a reply signal to the antenna of said interrogator, the recovery section which restores to the received signal, The control section which controls a transponder based on the data of said recovery section, It considers as the mobile discernment system which consists of transponders with the modulation section which possesses the 1st, 2nd, and 3rd absorber with which a change machine differs from an absorbed amount, and carries out amplitude modulation of the signal from said interrogator to

he reflected wave as a reply signal.

0010] When a transponder carries out amplitude modulation of the signal from an interrogator by this using the absorber with which absorbed amounts differ By making it possible to reflect the wave from which a modulation factor differs for every transponder as a reply signal, and for an interrogator to separate the reply signal from two or more transponders by the difference in a modulation factor, and to restore to the reply signal from each transponder simultaneously It has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time.

0011] Invention according to claim 2 is set to a mobile discernment system according to claim 1. When the modulation section of a transponder changes two absorbers of arbitration at the time of a communication link When it is characterized by carrying out amplitude modulation of the signal from an interrogator to the reflected wave as a reply signal and a transponder chooses the modulation factor of arbitration Reflect the wave from which a modulation factor differs whenever it is a communication link as a reply signal, and an interrogator separates the reply signal from two or more transponders by the difference in a modulation factor, and the reply signal from each transponder by making it possible to get over simultaneously It has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time.

0012] Invention according to claim 3 is set to a mobile discernment system according to claim 1. Amplitude modulation of the signal from an interrogator is carried out to the reflected wave as a reply signal by changing the 1st and 2nd absorber at the time of the 1st communication link. At the time of the communication link of the 2nd henceforth When it is characterized by carrying out amplitude modulation by changing the 1st and 3rd absorber and a transponder changes the modulation factor at the time of the 1st communication link, and the modulation factor at the time of the communication link of the 2nd henceforth It has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time because an interrogator separates the reply signal of the transponder which failed in reading of data by the difference in a modulation factor and gets over by the 1st communication link.

0013] Invention according to claim 4 is set to a mobile discernment system according to claim 1. When it is characterized by setting [the absorbed amount of the 1st absorber] the absorbed amount of 10dB and the 3rd absorber to 0dB for the absorbed amount of 0dB and the 2nd absorber and a transponder carries out amplitude modulation with a large modulation factor, and amplitude modulation with a small modulation factor An interrogator separates the reply signal from two or more transponders by the difference in a modulation factor, and has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time by making it possible to restore to the reply signal from each transponder simultaneously.

0014] Invention according to claim 5 is set to a mobile discernment system according to claim 1. By the reply signal of a transponder consisting of data streams containing a solid-state recognition data stream and an information data stream, and changing the 1st and 3rd absorber at the time of solid-state recognition data stream transmission Amplitude modulation of the signal from an interrogator is carried out to the reflected wave as a reply signal. At the time of information data stream transmission When it is characterized by carrying out amplitude modulation by changing the 1st and 2nd absorber and a transponder changes the modulation factor at the time of solid-state recognition data stream transmission, and the modulation factor at the time of information data stream transmission From two or more transponders, even if a solid-state recognition data stream and an information data stream are sent simultaneously; by making it possible for an interrogator to separate a reply signal by the difference in a modulation factor, and to get over simultaneously It has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time.

0015] The modulation section in which invention according to claim 6 modulates the output signal from the source of a signal which generates an output signal, and said source of a signal, The splitter which separates spectrally the reflected wave as a reply signal received by the antenna which transmits the output signal modulated in said modulation section, and said antenna with an output signal, While inputting the signal sent out from an interrogator with the recovery section which restores to said reply signal, the data-processing section which processes the signal from said recovery section, and the control section which controls an interrogator based on the data of said processing section, and said interrogator The response dexterous antenna which sends out a reply signal to the antenna of said interrogator, the recovery section which restores to the received signal, The control section which controls a transponder based on the data of said recovery section, It considers as the mobile discernment system which consists of transponders with the modulation section which possesses the 1st, 2nd, and 3rd phase shifter with which a change machine differs from the amount of phases, and carries out the phase modulation of the signal from said interrogator to the reflected wave as a reply signal.

0016] When a transponder carries out the phase modulation of the signal from an interrogator by this using the phase

shifter with which the amounts of phases differ By making it possible to reflect the wave from which a modulation factor differs for every transponder as a reply signal, and for an interrogator to separate the reply signal from two or more transponders by the difference in a modulation factor, and to restore to the reply signal from each transponder simultaneously It has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time.

0017] Invention according to claim 7 is set to a mobile discernment system according to claim 6. It is what is characterized by carrying out the phase modulation of the signal from an interrogator to the reflected wave as a reply signal by changing two phase shifters of arbitration at the time of a communication link. The wave from which a modulation factor differs at every communication link when a transponder chooses the modulation factor of arbitration is reflected as a reply signal. An interrogator separates the reply signal from two or more transponders by the difference in a modulation factor, and has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time by making it possible to restore to the reply signal from each transponder simultaneously

0018] Invention according to claim 8 is set to a mobile discernment system according to claim 6. The phase modulation of the signal from an interrogator is carried out to the reflected wave as a reply signal by changing the 1st and 2nd phase shifter at the time of the 1st communication link. At the time of the communication link of the 2nd henceforth When it is characterized by carrying out a phase modulation by changing the 1st and 3rd phase shifter and a transponder changes the modulation factor at the time of the 1st communication link, and the modulation factor at the time of the communication link of the 2nd henceforth It has an operation that it is small and cheap and the data of two or more transponders in the same area can be read in a short time because an interrogator separates the reply signal of the transponder which failed in reading of data by the difference in a modulation factor and gets over by the 1st communication link.

0019] Invention according to claim 9 is set to a mobile discernment system according to claim 6. When it is characterized by making [the amount of phases of the 1st phase shifter] the amount of phases of the 3rd phase shifter into 180 degrees for the amount of phases of the 2nd phase shifter 170 degrees 0 times and a transponder carries out a phase modulation with a large modulation factor, and a phase modulation with a small modulation factor